ERNEST FLEMING
MACHINERY & EQUIPMENT Pty Ltd

Flamingo 2 Head Automatic Filler

Natures Quest Pty Ltd:

#27209 – NWH2PB1000/001

User Manual:

Contents:

Operation Principals:

The basic principles of operation are as follows:

The hopper feeds directly off to the rotary valves which connect between the hopper and cylinder on the draw stroke, it then rotates 90 degrees between the cylinder and discharge tube on the dispense stroke. Because the rotary valve is hollowed out, larger particles of up to half an inch (sometimes larger) can pass through with ease.

The Filler is designed and Manufactured to Australian Standards entailing simple operation, quick adjustments, easy cleaning and maintained and an array of safety features to ensure quick, reliable and safe operation in a working environment

Technical Specifications:

Model:	NWH2PB1000
Power:	240V, 50HZ Single Phase
Filling Speed:	400 @1 litre bottle/h (**2 Heads**) (@ very low rise and fall)
Filling Volume:	100 – 1000ml
Filling Precision:	≤±2%
Air Pressure:	0.4 – 0.6mpa
Dimensions (filler only):	2100 mm x 1250 mm x 1850 mm
Weight (filler only):	150KG

Description of machine:

The NWH2PB1000 series piston filler is used for filling liquids and pastes with various viscosity levels in various industries such as Chemical, Food, and Pharmaceutical, Oil, Medicine and more. With the use of Taiwan's SHAKO latest electric elements and components, we are able to ensure great durability, stability and a high level of accuracy.

The main factors that affect the machine operations are as follows:

1. In Filling Accuracy: *Compressed air stability, material consistency and filling speed*
2. In Filling Speed: *Material viscosity, cylinder stroke, filling nozzle and conveyor speed*

Installation and Adjustment:

Installation environment:

The machine should be installed in a dry, clean environment where the surface is flat and even.

Power supply:

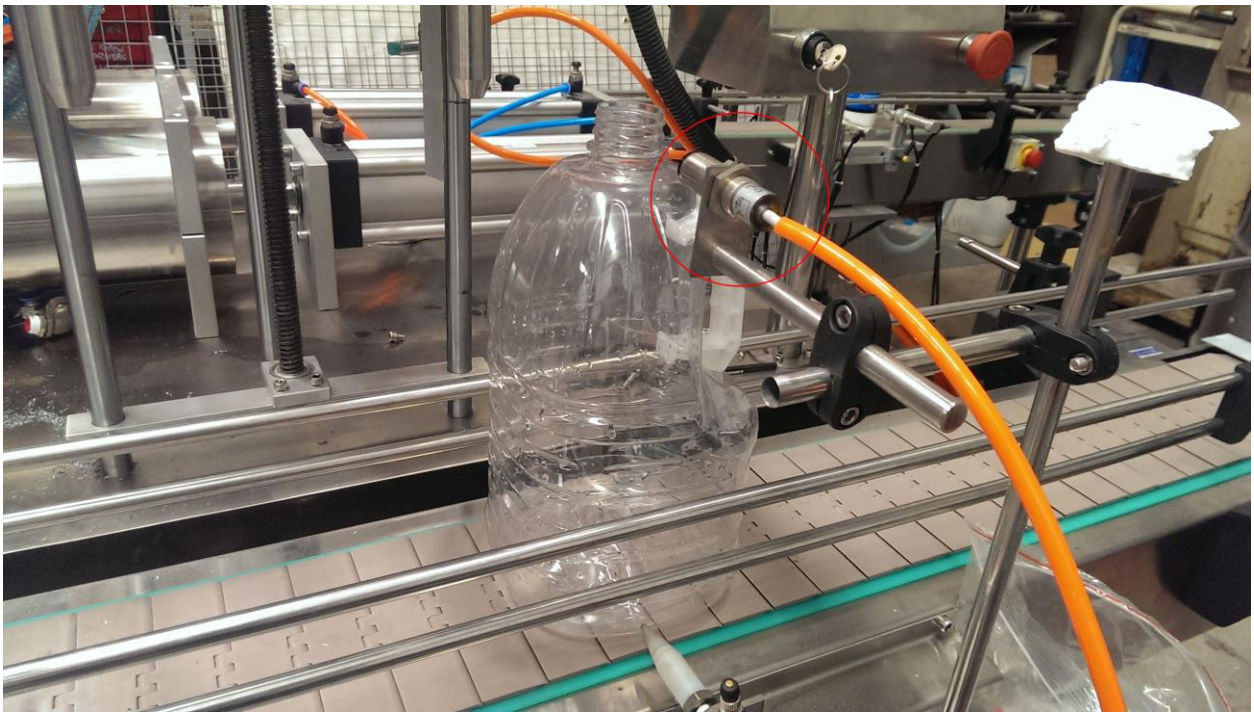
The required power is 240 Volt single phase. 5 Amp is adopted on the machine. Before connecting the power, a reliable earthing should be ensured by a trained professional to ensure the operators safety.

Air source:

A 0.4 – 0.6 Mpa air source is required for the machine. The air supply must be stable to ensure uniform cylinder motion and accurate filling

Electric eye sensors adjustments:

- Adjust the eye sensors to detect the locations of the bottlenecks
- Ensure the distance between the sensor and the bottle is no more than a few millimetres



The lifting height:

Position the bottle as required under the nozzles and then enter manual operation to drop the height until the nozzle is about 1cm from the bottom of the bottle. Set this as your highest point on the rise fall sensors. Now drop the nozzles into the bottle in manual operation until they are about 2/3rds from the bottom. Set this as your lowest point (see diagram on next page)

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Debugging:

The best method of debugging is entering the PLC into manual operation and operating all 5 elements standalone. Through this method we are able to work out what is not operating correctly and why.

Filling Speed:

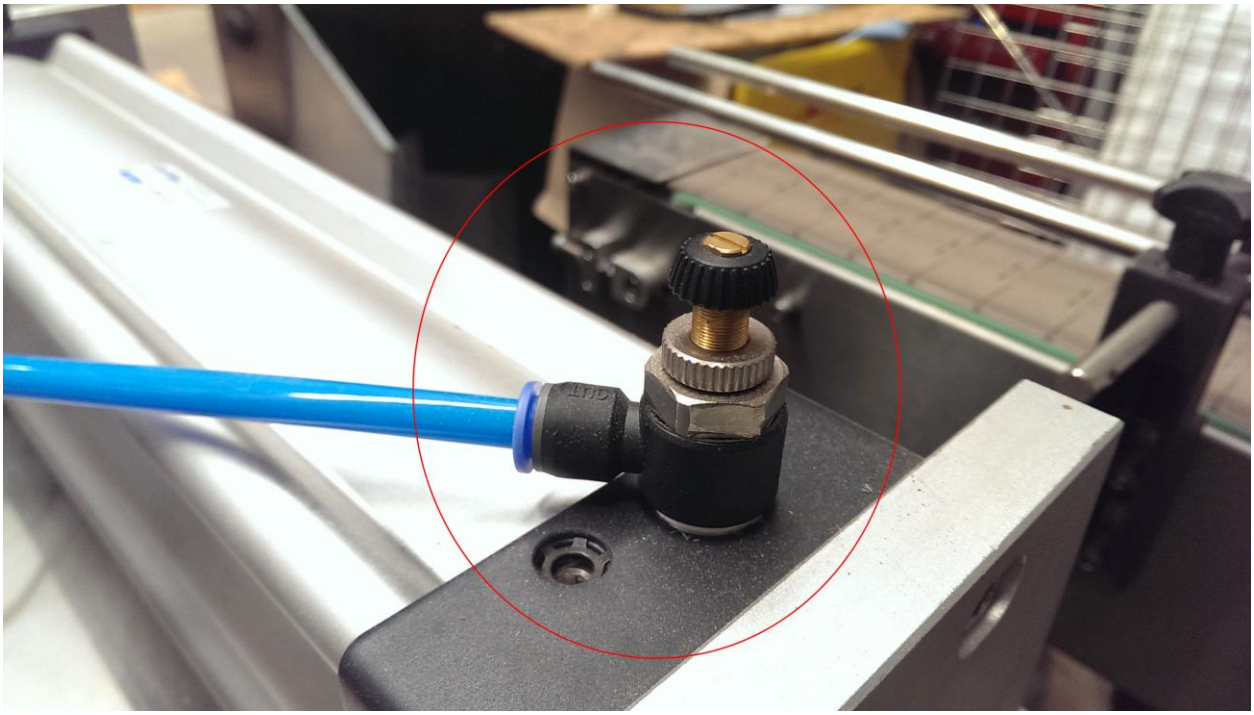
Several different parameters will affect the filling speed:

Definition:	Reason:
Pull through speed (suck speed):	*Depends on product viscosity*
Diameter of the changeable nozzle:	*The larger the diameter, the faster the fill*
Foaming product:	*High foaming products should be filled at a slower speed*
Nozzle rise speed:	*You must ensure the nozzle is out of the bottle mouth*
Filling range:	*The larger the filling range, the slower the speed*
Filling precision:	*If you require a very high level of precision, you must decrease the filling speed*
Conveyor speed	*If you require a faster filler, increasing the conveyor speed will enhance transportation speed overall increasing filling speed*

Filling Accuracy Adjustments:

Any filling inaccuracies are caused by the filling amount, filling speed and the speed of the upper and lower valve switch. The upper and lower valve speed is related to the product viscosity. The greater the viscosity is, the slower the valves are opened and closed.

To adjust the valve opening and closing speed, adjust the valve spring pressure. With increased pressure the valve speed is accelerated.



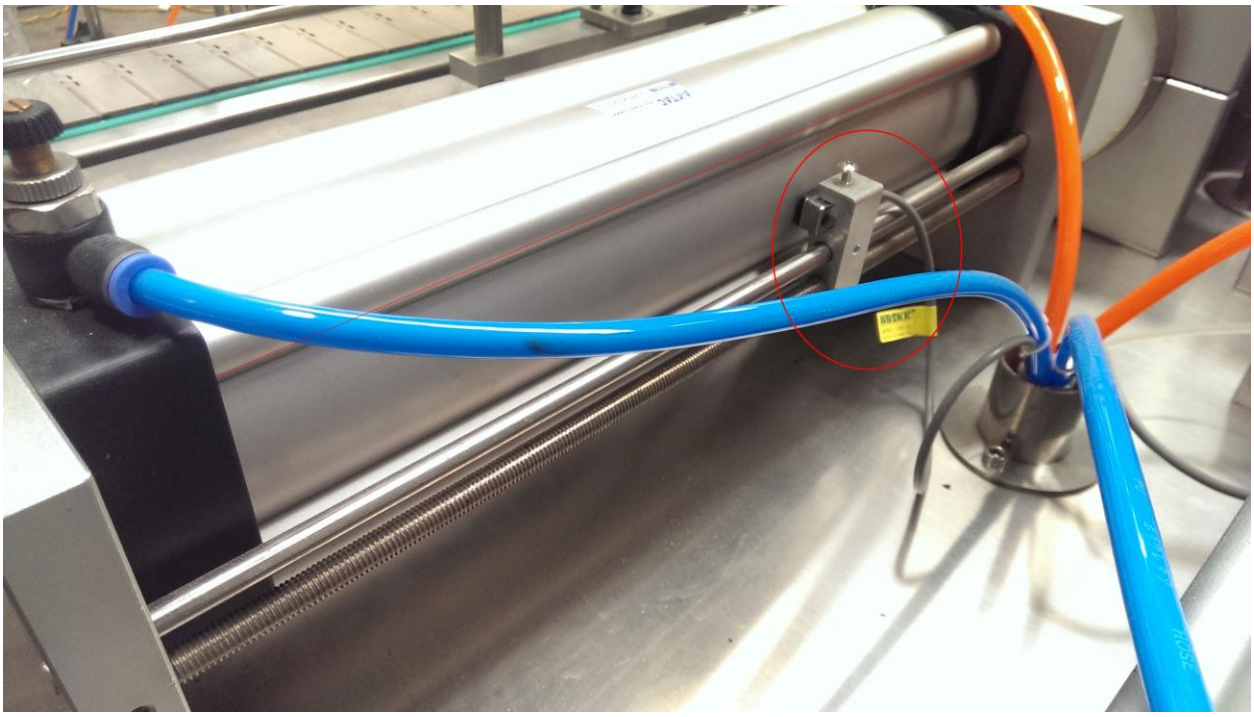
Safety Operations:

In order to ensure safe operation please pay attention to the following:

- Ensure only a trained professional operates the machine
- If overflowing of the filling nozzles occurs, press the Emergency stop switch to avoid product leakage
- It is not recommended to directly flush the machine body with water as this could cause electric leakage. Please see the 'Cleaning and Maintenance' section for information on how to clean the machine
- Please ensure the airlines supplied are used and connected
- If the cylinder is ejected and is not returning, please press the reset button to reset the cylinder
- If there are any safety concerns while operating the equipment please press the emergency stop switch and contact Ernest Fleming Machinery and Equipment Pty Ltd to organize a service

Filling Volume Adjustment:

- To change the cylinder filling amount you must rotate the screw threads on the two cylinders



- The further out you bring the sensor, the larger the fill (max 1L)
- Make sure you adjust both the sensors to the same amount

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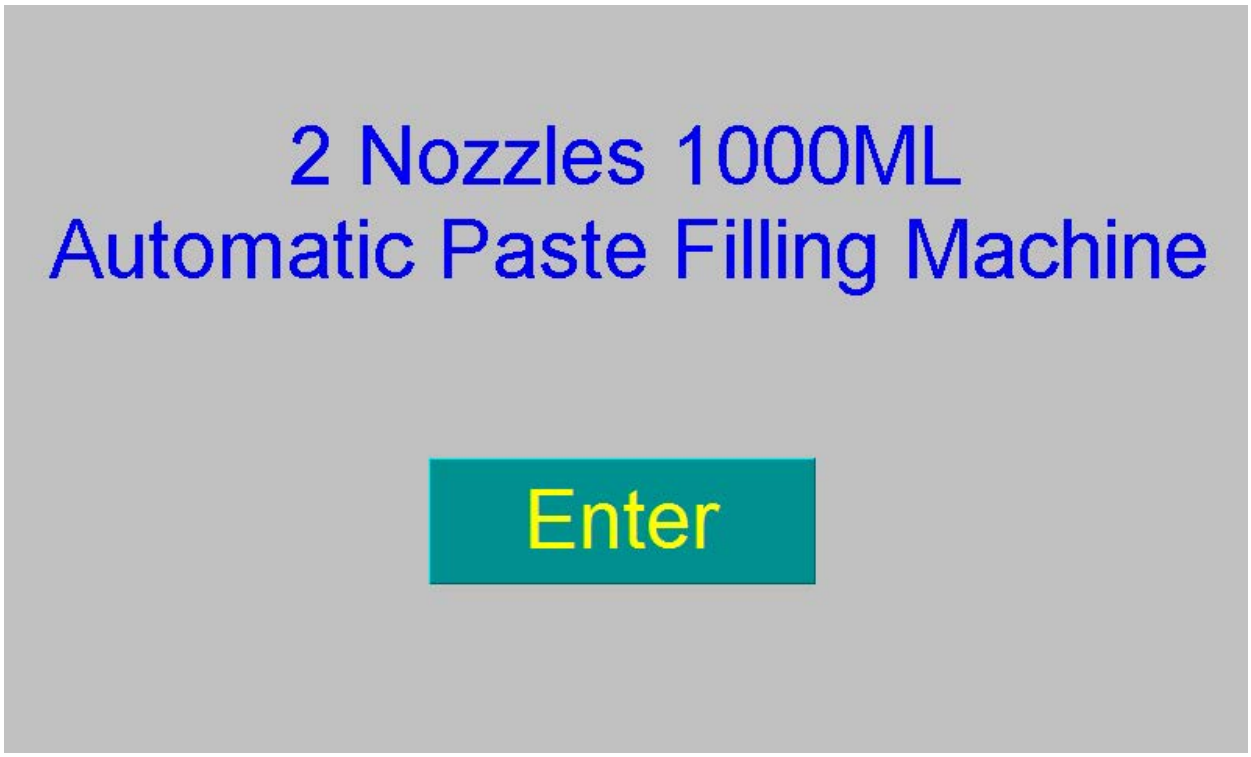
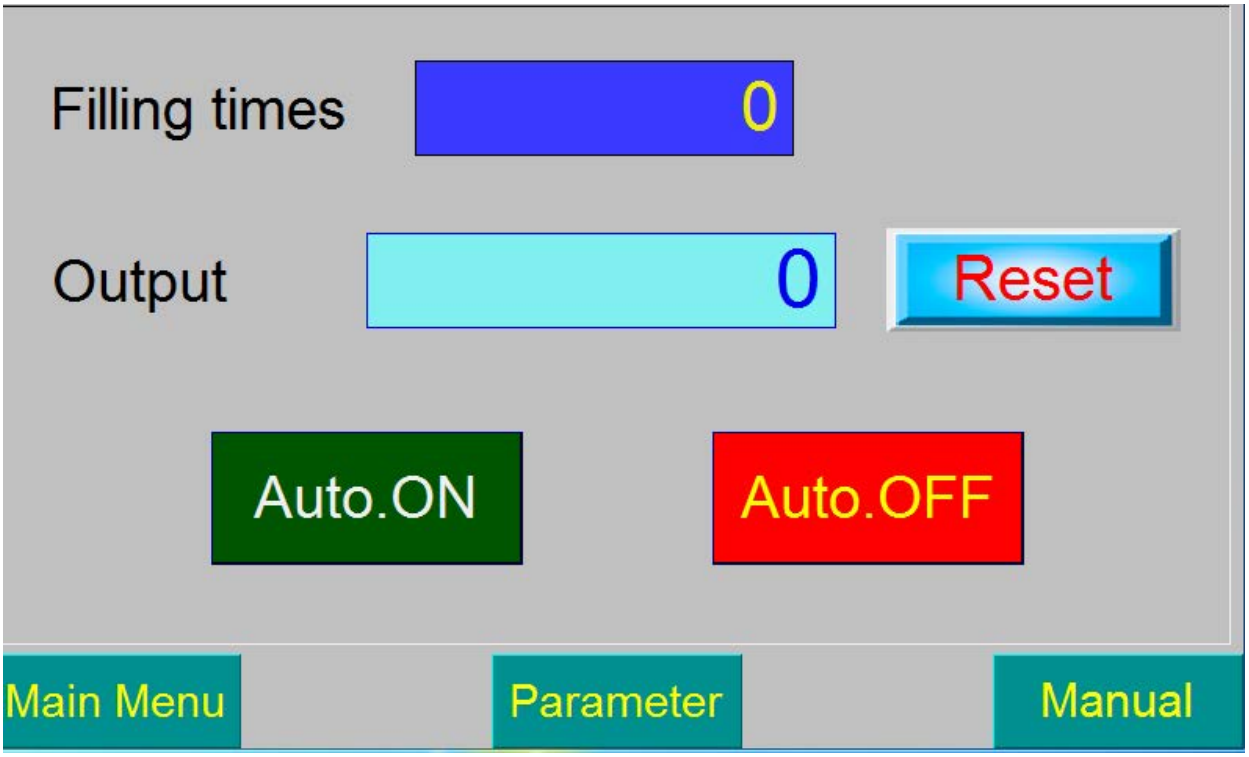
Touch Screen Operations:



Power on Menu:

- Once you have powered on the unit select 'Enter'



Automatic Operations Menu:

Filling Times: The total amount of bottles you would like to fill

Output: The total amount of bottles that have been filled so far

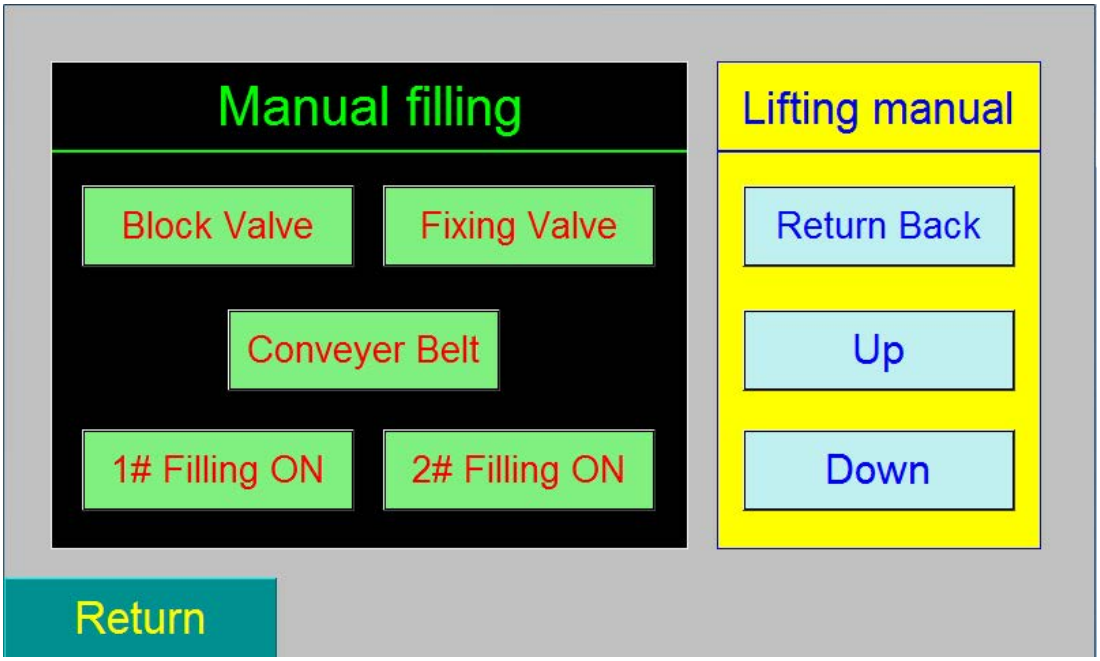
Auto ON: Starts the automatic filling sequence

Auto OFF: Stops the automatic filling sequence

Main Menu: Takes you back to the power on screen

Parameters: Takes you through to the Machine Parameter adjustment

Manual: Takes you through to the Manual Operations Menu (for testing and configuration)



Manual Operations Menu:

Block valve: Activates the valve that stops the bottles passing the filling head

Fixing valve: Activates the valve that stops more bottles feeding into the filling head while in filling sequence

1# Filling ON: Activates the filling sequence of the first piston

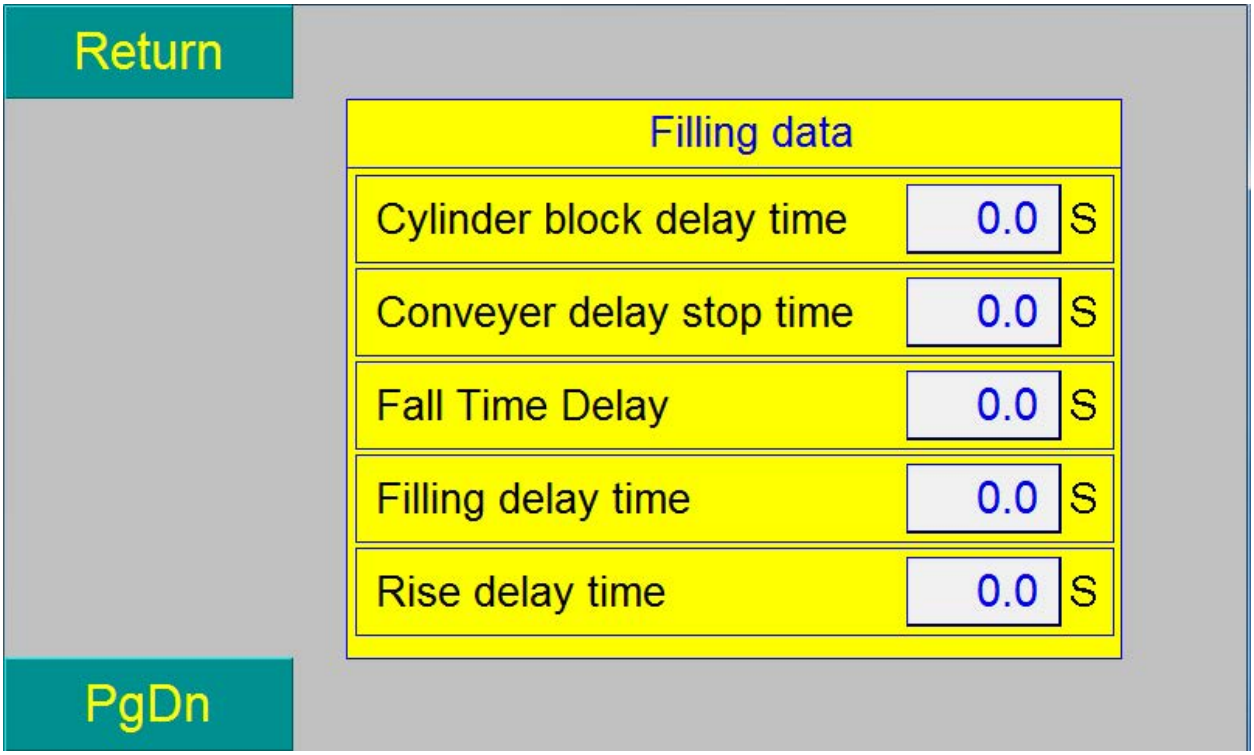
2# Filling ON: Activates the filling sequence of the second piston

Return Back: Raises the nozzles back up to the set max height

Conveyor Belt: Activates the filler conveyor belt

Down: Drops the filling nozzles

Up: Raises the filling nozzles



Parameter Settings Menu:

Filling Parameter settings:

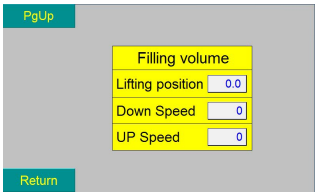
Cylinder block delay time: The amount of time after the sensor detects 2 bottles before the ram activates or deploys

Conveyor belt stop time: After the block cylinder is activated, the conveyor is hauled for this period of time before the filling commences

Fall time delay: The amount of time after the conveyor halts for filling before the fill sequence begins

Filling delay time: The delay of time once the heads have fallen but have not started filling

Rise Delay time: The delay of time once the fill has completed before the heads return to max height



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Lifting Position: The amount of screw rotations the servo drive must lift to (irrelevant as sensors are installed)

Down Speed: The speed at which the heads drop down

Up Speed: The speed at which the heads raise back up

Physical Buttons:

Key Power switch

Emergency stop switch

Conveyor Speed Controller (x1)

Maintenance and Cleaning:

- The machine body is made of Stainless steel. Please be careful of sharp edges and corners
- The cylinder is factory lubricated. Please DO NOT open the cylinder for applying lubricant
- Before washing the machine, clear the cylinders and rotary valve
- It is suggested to use warm water for cleaning, if necessary, soap, alcohol and other soft detergents can be used for washing
- Let the machine complete a full cycle with just warm water
- Wash all the parts contacting to the material, such as cylinder, piston head, ring, one way valve, filling head, feed pipe, discharge pipe ect. Upon washing sealing rings, do not miss the XY ring for the piston and the flat ring of the valves

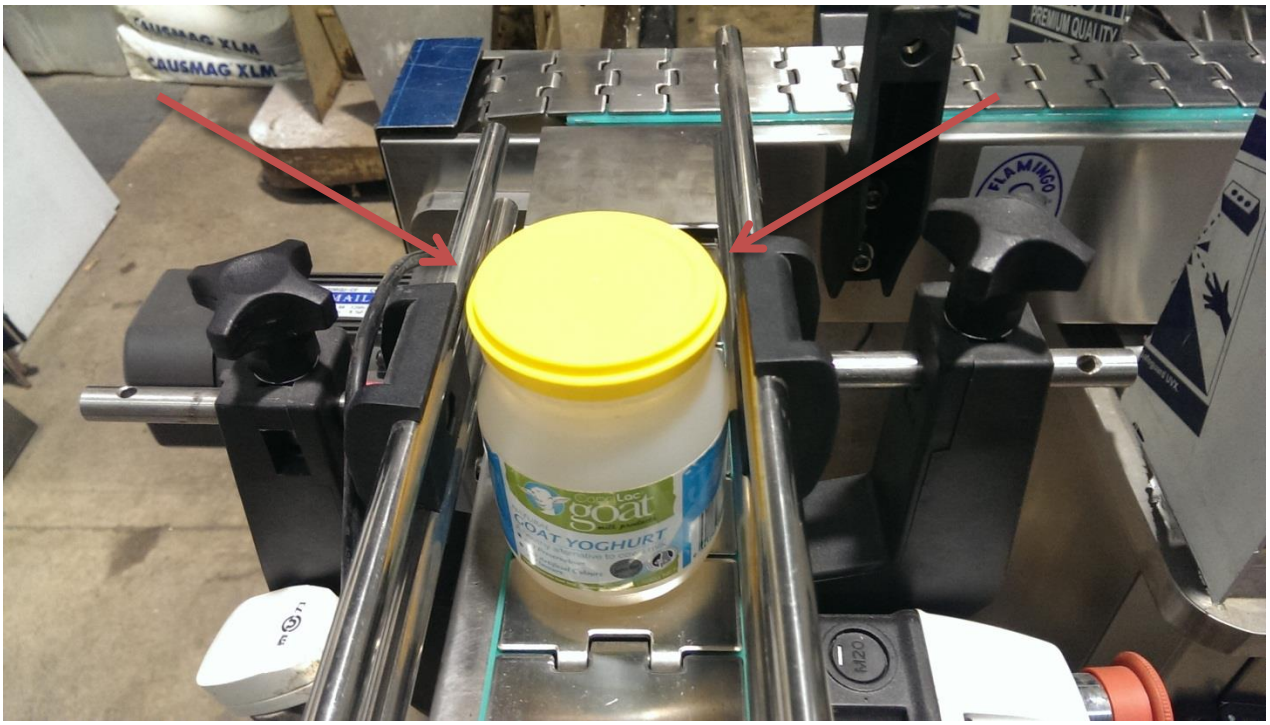
Troubleshooting:

Problem:	Solution:
Piston refuses to move or work	1. *Check whether the emergency stop switch is abnormally locked* 2. *Check whether the air source switch is turned on* 3. *Check if the magnetism switch is damaged* 4. *Confirm if the throttle valve is closed or not*
The piston cylinder is travelling to the top, but not returning	1. *Press the reset switch*
Filling volume is not accurate or no material is feeding	1. *Confirm if the throttle valve is closed or not* 2. *Check whether the three direction joints of each pipe is well sealed* 3. *Ensure there is enough material feeding in*
Material flows from the rear end of the material cylinder	1. Check whether the ring on the piston is worn. If it is please replace it 2. Check whether the piston and piston rod are firm

Setup for different bottles and caps:

In feed Conveyor:

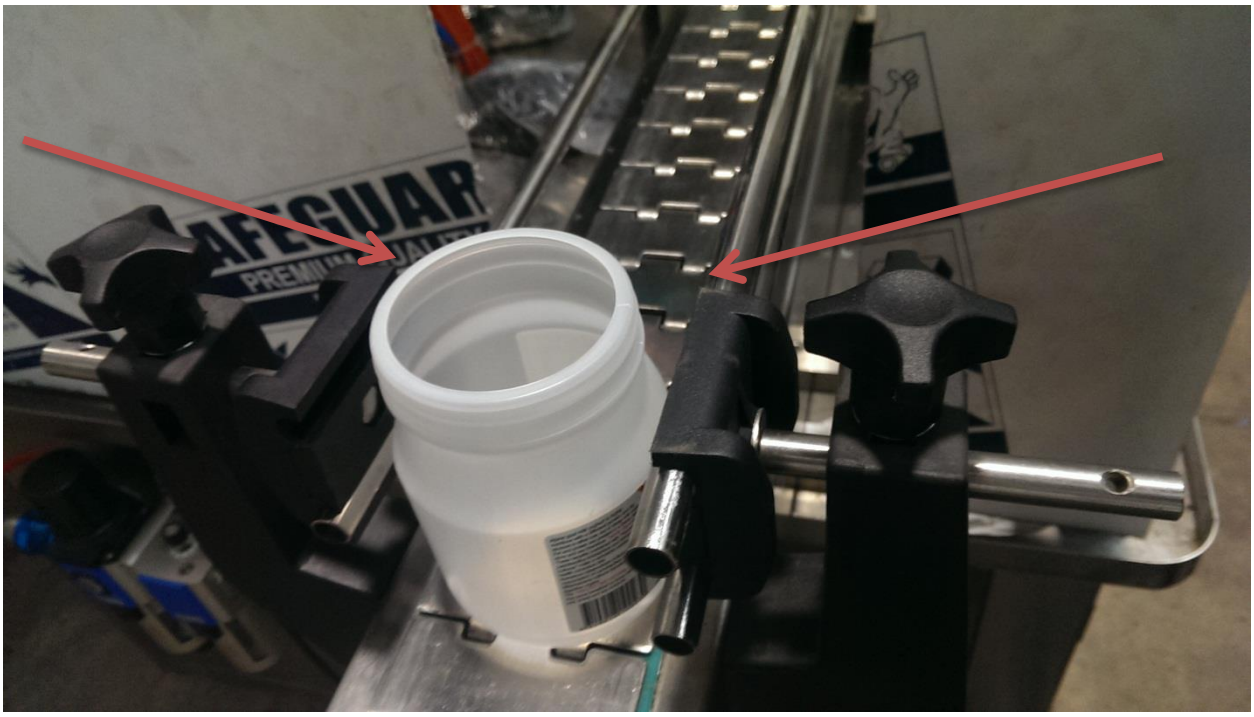
1. Adjust the guard rails to suite the bottle as required



2. Adjust the conveyor speed to match the fillers speed
3. Adjust the flexi-connection between the conveyors to suite the bottle

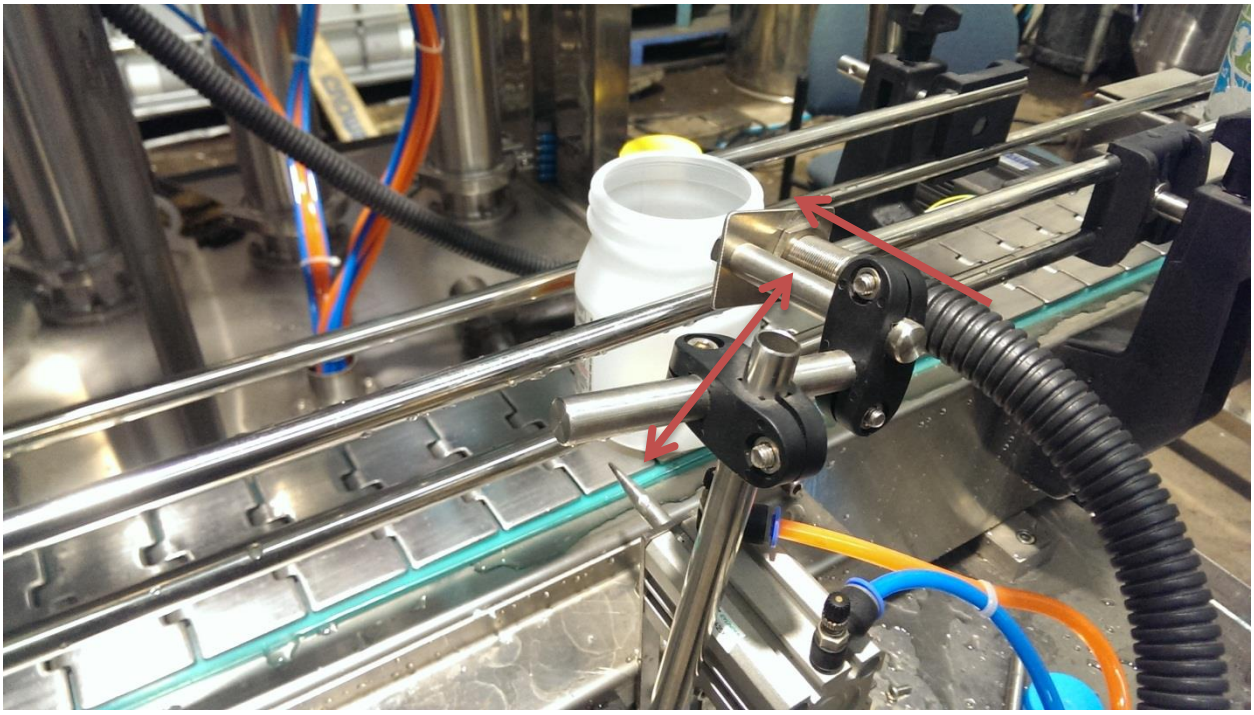
Filling:

1. Adjust the guard rails to suite the bottle as required



2. Adjust the conveyor speed to match the in feed conveyors speed
3. Adjust the in feed filling sensors to detect the bottles as they feed in

4. Adjust the out feed filling sensor to count out the bottles as they feed out (ensure that the sensor is AFTER the bottle ram)



5. Adjust the flexi-connection between the conveyors to suite the bottles